



Piston pin with DLC coating

New technology decreases friction and wear

The DLC coating of the piston pins used in the series is now also used for pistons in the Motorservice product range.

The DLC coating is regarded as an innovative coating procedure in engine manufacturing. DLC (= Diamond Like Carbon) layer can significantly increase the performance and durability of tribologically stressed components with its wear and friction-reducing properties.

For pistons and connecting rods, by using piston pins with DLC coating, bearing bushes are no longer needed. Furthermore, problematic tribological pairing can be realised, where both interacting sliding parts are made of steel. This is already successfully applied for steel pistons or bushless sinter rods.

Characteristics

DLC coatings are characterised by an extremely hard surface, which is markedly harder than that of ultra hard steels. Furthermore, DLC coatings are very elastic and can reversibly absorb deforming stresses. The layer thickness is up to 2 µm with an extremely low sliding friction coefficient of 0.1. The maximum value permissible component temperature is approx. 450 °C.



Fig. 1: Piston pin with DLC coating

Process

The DLC coating is applied with a PVD (Physical Vapour Deposition process) procedure. In engine manufacturing, the PVD process has been used for more than 20 years for coating sputter bearings.

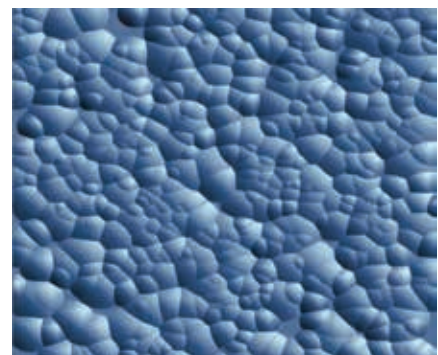


Fig. 2: Surface topography of a DLC coating (schematic diagram)